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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,889	11/17/2003	Gerald L. Timm	1349	5292
7590 DAVID J. ARCHER 7037 POMEROY RD. ROCKTON, IL 61072		01/15/2008	EXAMINER RINEHART, KENNETH	
			ART UNIT 3749	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Interview Summary	Application No.	Applicant(s)	
	10/715,889	TIMM ET AL.	
	Examiner	Art Unit	
	Kenneth B. Rinehart	3749	

All participants (applicant, applicant's representative, PTO personnel):

(1) Kenneth B. Rinehart. (3)_____

(2) Mr. Archer. (4)_____

Date of Interview: 08 January 2008.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
If Yes, brief description: _____

Claim(s) discussed: 1 and 12.

Identification of prior art discussed: none.

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: see attached.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

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The applicant had amended the claims to emphasize that the turbulence bars are disposed within said enclosure for maximizing uniformity of said transfer of thermal energy in a cross machine direction and minimizing said transfer of thermal energy. The applicant emphasized the uniformity of this transfer which he said was found to be surprising. Apparently, the uniformity of this transfer provides for more uniform drying which facilitates the processing of the web downstream. The examiner stated that he would consider the applicant's amendments and arguments when formally entered.


KENNETH FINEHART
PRIMARY EXAMINER

In the United States Patent and Trademark Office

PROPOSED AMENDMENT DRAFT FOR INTERVIEW

USPN: 10/715889

Applicant: Timm

Filed: 11/17/2003

Docket: 1349

Mail Stop Amendment

Commissioner for Patents,

P.O. Box 1450

Alexandria, VA 22313-1450

Sir,

Proposed Amendment "C"

In response to the non final Office Action mailed 08/10/2007/2007, Applicants wish to propose the following amendment:

In the claims:

Please amend the claims as follows

1. (currently amended) A dryer bar apparatus of a dryer for drying a web in a papermaking machine, said apparatus comprising:

a rotatable dryer shell of cylindrical configuration, said dryer shell having an outer surface for drying the web;

said dryer shell having an inner surface which defines an enclosure, said inner surface having a radius R_i ;

said enclosure being connected to a source of pressurized steam such that in operation of the dryer, a transfer of thermal energy from the steam within said enclosure through said inner surface of said dryer shell to said outer surface of said dryer shell is achieved so that the web is dried;

a syphon disposed within said enclosure for controlling a layer of condensed steam accumulating adjacent to said inner surface of said dryer shell during operation of said apparatus;

a specific number of turbulence bars disposed within said enclosure for maximizing uniformity of said transfer of thermal energy in a cross machine direction and minimizing said transfer of

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thermal energy through said dryer shell from said inner to said outer surface, each of said turbulence bars extending in a cross machine direction in contact with said inner surface, said bars being circumferentially spaced equidistantly around said inner surface of said dryer shell for generating turbulence within said layer so that uniformity of said transfer of thermal energy in said cross machine direction is maximized while said transfer of thermal energy through said dryer shell from said inner to said outer surface is minimized; and

said maximizing uniformity of said transfer of thermal energy in said cross machine direction and minimizing said transfer of thermal energy through said dryer shell from said inner to said outer surface being attained by the fitting of said specific number of turbulence bars within said dryer shell;

said specific number of turbulence bars being determined by the equation:

$$N = \text{int} \{ [2 \pi Ri / [4 \pi (Ri \delta)^{1/2} + W]] \}$$

in which:

N= said specific number of turbulence bars in said dryer shell;

int= an integer number of a value in {} brackets;

$\pi = 3.1415$;

Ri = said inside radius of said inner surface of said dryer shell in inches;

δ = an average depth of said layer in inches;

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W= a width of each of said turbulence bars in inches.

2. (original) A dryer bar apparatus as set forth in claim 1 wherein

said number of turbulence bars is equal to $N \pm 1$.

3. (original) A dryer bar apparatus as set forth in claim 1 wherein

said number of turbulence bars is equal to $N \pm 2$.

4. (original) A dryer bar apparatus as set forth in claim 3 further including:

a further number of hoop segments spaced circumferentially along said inner surface of said dryer shell for holding said turbulence bars in contact with said inner surface;

said number of turbulence bars being a multiple of said further number of hoop segments.

5. (original) A dryer bar apparatus as set forth in claim 1 wherein

$N = 3$.

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6. (original) A dryer bar apparatus as set forth in claim 1 wherein
N = 4.

7. (original) A dryer bar apparatus as set forth in claim 1 wherein
N = 5.

8. (original) A dryer bar apparatus as set forth in claim 1 wherein
N = 6.

9. (original) A dryer bar apparatus as set forth in claim 1 wherein
N = 7.

10. (original) A dryer bar apparatus as set forth in claim 1 wherein
N = 8.

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11. (original) A dryer bar apparatus as set forth in claim 1 wherein

N = 9.

12. (currently amended) A dryer bar apparatus of a dryer for drying a web in a papermaking machine, said apparatus comprising:

a rotatable dryer shell of cylindrical configuration, said shell defining ~~and~~ an outer and an inner surface;

a number of dryer bars pressed outwardly against said inner surface, each of said bars extending in a cross machine direction along said inner surface; and

each bar being spaced from an adjacent bar by a quarter-resonant spacing for maximizing uniformity of said transfer of thermal energy in said cross machine direction and minimizing said transfer of thermal energy through said dryer shell from said inner to said outer surface; such that a rate of heat transfer through said dryer shell from said inner to said outer surface is minimized while optimizing a temperature uniformity in said cross machine direction.

13. (original) A dryer bar apparatus as set forth in claim 12 wherein

said quarter-resonant spacing is determined by an equation:

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$S=4\pi(Ri\delta)^{1/2}$ in which;

S= said quarter-resonant spacing;

$\pi = 3.1415$;

Ri = said inside radius of said inner surface of said dryer shell in inches;

δ = an average depth of a layer of condensed steam disposed adjacent to said inner surface in inches.

14. (original) An apparatus as set forth in claim 12 wherein

a cross-section of each of said bars is within a range from 0.25 inches x 0.25 inches to 1.0 inches x 1.50 inches;

each of said bars is metallic and of hollow tubular configuration;

said apparatus including:

at least one hoop for pressing each of said bars against said inner surface of said dryer shell;

said at least one hoop including:

at least one segment.

15. (currently amended) A dryer bar apparatus of a dryer for drying a web in a papermaking machine, said apparatus comprising:

a rotatable dryer shell of cylindrical configuration, said shell defining an outer and an inner surface;

a number of dryer bars pressed outwardly against said inner surface, each of said bars extending in a cross machine direction along said inner surface;

each bar being spaced from an adjacent bar by a quarter-resonant spacing such that a rate of heat transfer through said dryer shell from said inner to said outer surface is minimized while optimizing a temperature uniformity in said cross machine direction ~~in claim~~ ~~in claim~~ ;

a cross-section of each of said bars being within a range from 0.25 inches x 0.25 inches to 1.0 inches x 1.50 inches;

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each of said bars being metallic and of hollow tubular configuration;

said apparatus including:

at least one hoop for pressing each of said bars against said inner surface of said dryer shell;

said at least one hoop including:

at least one segment;

said at least one hoop including:

a number of segments within a range 2 to 4, each segment having a first and a second end;

a segment fastener disposed between said first and a second end of an adjacent segment for forcing adjacent segments apart;

each fastener being threaded on one of said ends thereof;

each of said hoop segments defining a hole in each end thereof, for engagement with a segment fasteners;

each of said segment fasteners having a head that passes through said hole in said end of said

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segment;

a hexagonal socket head defined by said fastener for permitting tightening of said fastener by a power tool; and

a cylindrical pin for connecting each of said bars to an adjacent segment.

16. (original) An apparatus as set forth in claim 15 wherein

said pin has an interference boss to hold said pin in said segment;

said pin having a shoulder to prevent said pin from coming out of said segment, said pin extending far enough out of said segment and into said bar so that disengagement of said pin from said segment is prevented.

17. (canceled)

18. (canceled)

19. (canceled)

20. (canceled)

Remarks.**Allowable subject matter.**

The Examiner has objected to claim 15 because of the phrase “. An apparatus as set forth in claim”.

Accordingly, Applicants have removed the aforementioned phrase so that as previously indicated by the Examiner, claims 15 and 16 are allowable.

Claim rejections under 35 USC103

Claims 1-14 have been rejected over various references.

An essential and very important feature of the present invention is the provision of dryer shell in which the transfer of heat from the inside to the outside of the shell maximizes uniformity of the transfer of thermal energy in the cross machine direction and minimizing the transfer of thermal energy through the dryer shell from the inner to the outer surface.

In the prior art, turbulator bars are provided in order to break up the layer of condensate that would otherwise build up within the shell thus insulating the heat of the steam within the shell. Such break up of the condensate layer maximizes the flow of heat from the steam through the shell.

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However, in the present invention, rather than **maximize** the flow of heat, the opposite condition is being sought in order to **increase** or **maximize** the **uniformity** in a cross machine direction of such heat flow. The specific number of bars is provided in order to **minimize** flow of heat from the steam through the shell so that the **uniformity**, in a cross machine direction, of the flow of heat through the shell is increased or **maximized**. It is an objective of the present invention, as claimed, to have the same amount of heat flow through the shell all the way along the shell in a cross machine direction so that the web will be equally dried in a cross machine direction. Amended claim 1 is **not** claiming maximizing the heat flow but rather **maximizing the uniformity** of such heat flow in a cross machine direction. This is achieved by decreasing or **reducing** such heat flow from the steam through the condensate layer to a **minimum**.

None of the cited references give even a hint concerning the aforementioned surprising discovery disclosed in the present application. Furthermore, none of the cited references teach a formula for achieving such surprising discovery.

Applicants have amended claim 1 and 12 to emphasize the aforementioned important feature of the subject invention.

Applicant's representative the undersigned is presenting the claim amendments and remarks as a **proposed amendment** for consideration by the Examiner. Accordingly, Applicant's representative would appreciate an opportunity of an **interview** with the Examiner to discuss the surprising advantages and the non obviousness of the proposed claims over the art of record.

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More specifically, Applicant's representative requests an interview prior to **January 10, 2008** in order to avoid an unnecessary extension.

Reexamination and reconsideration of claims 1-16 is requested.

Respectfully submitted,

David J. Archer

Reg. No. 31,076

Applicants representative.